What is claimed is:

1. An optical device for use in a optical system for reading an optical code, comprising a unitary body of optical material having an aperture forming area and a beam phase modifying area both receptive of light from a light source for the focus free forming of a beam for reading the optical code.

2. The device according to claim 1, wherein the aperture forming region comprises an outer region of an inner surface of the unitary body and the beam phase modifying area comprises an inner region of the inner surface of the unitary body.

3. The device according to claim 2, wherein the beam phase modifying area further comprises an inner region of an outer surface of the unitary body and the aperture forming area further comprises an outer region of the outer surface of the unitary body.

4. The device according to claim 3, wherein the outer region of the outer surface of the unitary body is a beam splitter.

5. The device according to claim 2, wherein the inner region of the inner surface comprises a converging region for focusing a portion of the light to form said beam and the outer region of the inner surface comprises a diverging region for diverging a portion of said laser light away from said beam.

6. The device according to claim 5, wherein said converging region is located concentrically within said diverging region.

7. The device according to claim 3, wherein the inner region of the outer surface of the unitary body is substantially perpendicular to said beam for transmitting said beam and the outer region of the inner surface is at an oblique angle relative to said beam to form a beam splitting surface for reflecting a portion of return light.

8. The device according to claim 7, wherein said oblique angle is set such that said beam splitting surface transmits a P-polarized component of said return light and redirects at least a portion of an S-polarized component of said return light.

9. The device according to claim 1, wherein the unitary body further comprises a laser support region for supporting a laser source.

10. The device according to claim 9, wherein the unitary body has at least one notch configured to support an edge of a circuit board.

11. The device according to claim 1, wherein the unitary body comprises an outer surface for collecting return light.

12. The device according to claim 11, wherein the outer surface is a Brewster's angle beam splitter.

13. A multipurpose unitary body for supporting a laser source and collecting light reflected from a target in an optical system, the optical system capable of projecting and collecting laser light in order to read an encoded indicia, said multipurpose unitary body comprising:

a laser support region for supporting said laser source; and

at least one collection surface for collecting light reflected from said indicia.

14. The multipurpose unitary body of claim 13 further comprising at least one notch, said at least one notch configured to support a circuit board.

15. The multipurpose unitary body of claim 13 further comprising at least one stud, said at least one stud configured to support a circuit board.

16. The multipurpose unitary body of claim 13 wherein said collection surface is substantially non-polarizing.

17. The multipurpose unitary body of claim 13 wherein at least one collection surface can function as a Brewster's angle beam splitter.

18. A multipurpose unitary body for supporting a laser source and collecting light reflected from a target in an optical system, the optical system capable of projecting a focused beam of laser light and collecting reflected light in order to read an encoded indicia, said multipurpose unitary body comprising:

a laser support region for supporting said laser source;

an output surface substantially perpendicular to said beam for transmitting said laser light; and

a collection surface having an oblique angle relative to said beam for collecting light reflected from said indicia.

19. The multipurpose unitary body of claim 18 wherein said oblique angle is set such that said collection surface substantially transmits a P-polarized

component of said reflected light and redirects a sufficient amount of an S-polarized component of said reflected light to enable said optical system to read said indicia.

20. The multipurpose unitary body of claim 18 wherein said unitary body has at least one notch, said at least one notch being configured to support an edge of a circuit board.

21. A collection mirror for use in a bar code reader comprising at least one Brewster's angle beam splitter.

22. A unitary body for collecting light reflected from a target in an optical system, the optical system capable of transmitting a beam of laser light and collecting reflected light in order to read an indicia, said unitary body comprising:

an output surface substantially perpendicular to said beam for transmitting said laser light; and

a collection surface having an oblique angle relative to said beam for collecting light reflected from said indicia.

23. The unitary body of claim 22 wherein said oblique angle is set such that said collection surface substantially transmits a P-polarized component of said reflected light and redirects a sufficient amount of an S-polarized component of said reflected light to enable said optical system to decode said indicia.

24. In a method for reading optical codes, a method of forming a beam of light comprising the steps of:

emitting light from a light source; and

passing the light through a unitary body of optical material which forms an aperture using an aperture forming area and modifies a beam phase using a beam phase modifying area to effect a focus free forming of a beam for reading the optical code.

25. The method according to claim 24, wherein the aperture forming region comprises an outer region of an inner surface of the unitary body and the beam phase modifying area comprises an inner region of the inner surface of the unitary body.

26. The method according to claim 25, wherein the beam phase modifying area further comprises an inner region of an outer surface of the unitary body and the aperture forming area further comprises an outer region of the outer surface of the unitary body.

27. The method according to claim 26, wherein the outer region of the outer surface of the unitary body is a beam splitter.

28. The method according to claim 25, wherein the inner region of the inner surface comprises a converging region for focusing a portion of the light to form said beam and the outer region of the inner surface comprises a diverging region for diverging a portion of said laser light away from said beam.

29. The method according to claim 28, wherein said converging region is located concentrically within said diverging region.

30. The method according to claim 27, further comprising receiving return light on the beam splitter and redirecting a portion of the return laser light to a photodetector.

31. The method according to claim 24, wherein the step of aperture forming further comprises the step of redirecting divergent light energy from the periphery of said beam using an internal reflection surface.

32. A method of generating a signal from an indicia having elements of varying reflectivity, said method comprising the steps of:

passing P-polarized laser light from a laser source in a optical code reader through a unitary body of optical material which forms an aperture using an aperture forming area and modifies a beam phase using a beam phase modifying area to effect a focus free forming of a beam for reading the optical code; and

detecting a sufficient amount of an S-polarized component of light reflected from said indicia to enable decoding of said optical code.

33. The method according to claim 32, wherein said detecting step comprises using at least one surface of said unitary body to redirect said S-polarized component.

34. The method according to claim 32, further comprising the step of supporting said laser source using said unitary body.

35. The method according to claim 32, further comprising the step of supporting at least one circuit board using said unitary body.

36. A method of generating a signal from a target, comprising the steps of:

focusing P-polarized laser light from a laser source along an optical path through a unitary body of optical material in a bar code reader to said target;

redirecting at least a part of an S-polarized component of light reflected from said target using at least one surface of said unitary body, said surface having an oblique angle relative to said optical path; and

detecting at least a part of said S-polarized component of light reflected from said target.

37. The method of claim 36 wherein said projecting comprises manually controlling the position of the beam.

38. The method of claim 36 wherein said redirecting comprises using at least one Brewster's angle beam splitter to redirect said part of said S-polarized portion of light.

39. The method of claim 36 wherein said projecting comprises supporting said laser source using said unitary body.

40. The method of claim 39 further comprising using said unitary body for supporting at least one circuit board.

41. The method of claim 36 wherein said projecting step comprises supporting at least one circuit board using said unitary body.

42. An optical code reader capable of reading an optical code by projecting laser light at said indicia and collecting light reflected from said optical code, the optical code reader comprising:

a pen-shaped housing;

a laser source for emitting said laser light;

a unitary body for focusing said light into a beam, said unitary body having an output surface perpendicular to said beam through which said beam can be transmitted toward said optical code; and

a detector for receiving a portion of light reflected from said optical code and producing an electrical signal corresponding to the intensity of said reflected light, wherein said laser source, said unitary body, said collector, and said detector are situated in said housing.

43. The reader of claim 42 wherein said unitary body further comprises an aperture forming area and a beam phase modifying area both receptive of light from a light source for the focus free forming of a beam for reading the optical code.

44. The reader according to claim 43, wherein the aperture forming region comprises an outer region of an inner surface of the unitary body and the beam phase modifying area comprises an inner region of the inner surface of the unitary body.

45. The reader according to claim 44, wherein the beam phase modifying area further comprises an inner region of an outer surface of the unitary body

and the aperture forming area further comprises an outer region of the outer surface of the unitary body.

46. The reader according to claim 45, wherein the outer region of the outer surface of the unitary body is a beam splitter.

47. The reader according to claim 44, wherein the inner region of the inner surface comprises a converging region for focusing a portion of the light to form said beam and the outer region of the inner surface comprises a diverging region for diverging a portion of said laser light away from said beam.

48. The reader according to claim 47, wherein said converging region is located concentrically within said diverging region.

49. The reader of claim 46 wherein said outer region of the outer surface is arranged at an oblique angle relative to said beam.

50. The reader of claim 49 wherein said oblique angle is set such that said beam splitter substantially transmits a P-polarized component of return light and redirects at least a part of an S-polarized component of said return light for decoding.

51. The reader of claim 42 wherein said unitary body further comprises a laser support region for supporting said laser source.

52. The reader of claim 42 further comprising at least one circuit board in said housing.

53. The reader of claim 52 wherein said unitary body has at least one notch for supporting said at least one circuit board.

54. A wand reader capable of reading an optical code by projecting a focused beam of light at said optical code and collecting return light reflected from said optical code, the reader comprising:

a light source for emitting light energy;

a unitary body for focusing said light energy into the focused light beam, said unitary body having an output surface perpendicular to said focused light beam through which said focused light beam can be transmitted toward said optical code; and

a detector for receiving a portion of the return light reflected from said optical code and producing an electrical signal corresponding to the intensity of said return light,

wherein said light source, said unitary body, and said detector are situated in an antenna for use with a wireless transceiver of a telephone or personal digital assistant.

55. The reader of claim 54 wherein said unitary body further comprises an aperture forming area and a beam phase modifying area both receptive of light from a light source for the focus free forming of a beam for reading the optical code.

56. The reader according to claim 55, wherein the aperture forming region comprises an outer region of an inner surface of the unitary body and the beam phase modifying area comprises an inner region of the inner surface of the unitary body.

57. The reader according to claim 56, wherein the beam phase modifying area further comprises an inner region of an outer surface of the unitary body and the aperture forming area further comprises an outer region of the outer surface of the unitary body.

58. The reader according to claim 57, wherein the outer region of the outer surface of the unitary body is a beam splitter.

59. The reader according to claim 56, wherein the inner region of the inner surface comprises a converging region for focusing a portion of the light to form said beam and the outer region of the inner surface comprises a diverging region for diverging a portion of said laser light away from said beam.

60. The reader according to claim 59, wherein said converging region is located concentrically within said diverging region.

61. The reader of claim 58 wherein said outer region of the outer surface is arranged at an oblique angle relative to said beam.